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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/655,946	09/04/2003	Tong Xie	10030187-1	7020
57299	7590	02/15/2008	EXAMINER	
Kathy Manke Avago Technologies Limited 4380 Ziegler Road Fort Collins, CO 80525			SHERMAN, STEPHEN G	
			ART UNIT	PAPER NUMBER
			2629	
			NOTIFICATION DATE	DELIVERY MODE
			02/15/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.		Applicant(s)	
	10/655,946		XIE ET AL.	
	Examiner		Art Unit	
	Stephen G. Sherman		2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-11,13-18 and 20-24 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,4-11,13-18 and 22 is/are allowed.
- 6) ☒ Claim(s) 20-21 and 23 is/are rejected.
- 7) ☒ Claim(s) 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/ are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the amendment filed 27 December 2007.
Claims 1-2, 4-11, 13-18 and 20-24 are pending. Claims 3, 12 and 19 have been cancelled.

Response to Arguments

2. Applicant's arguments with respect to claims 20-21 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon et al. (US 6,433,780) in view of McCallister et al. (EP 0 957 448 A2) and further in view of Mumford (US 6,377,249).

Regarding claim 20, Gordon et al. disclose a method for optical navigation on an illuminated surface using an electronic device, said method comprising:

acquiring a first frame from said illuminated surface (Figure 5, step 31) at a single detector (Column 10, lines 39-43 explain that the images are taken using a photo detector) of said electronic device;

acquiring a second frame at said single detector from said illuminated surface (Figure 5, step 33);

determining a change in position in a first axis and in a second axis of said electronic device relative to said illuminated surface based on said first frame and said second frame (Figure 5, step 40 and 44),

wherein said determining a change in position comprises:

computing correlation values for said first frame and said second frame after said second frame has been shifted along one of said axes to determine an indication of movement of said electronic device from said first frame to said second frame (Figure 5, steps 33 and 34 take place after a shift in the reference frame takes place. This means

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that after the second image has been shifted to indicate movement the correlation values are computed.);

predicting a shift in position from said first frame based on said correlation values (Figure 5, step 40); and

outputting a motion signal indicating said shift in position (Figure 5, step 44).

Gordon et al. fail to teach of a illuminated surface or that said electronic device does not require an internal illumination source to provide illumination to said illuminated surface.

McCallister et al. disclose wherein an electronic device does not require an internal illumination source to provide illumination to said illuminated surface (Paragraph [0048]).

Therefore, it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to make the electronic device taught by Gordon et al. have the configuration of not needing an integral illumination source as taught by McCallister et al. in order to reduce the power consumption of the electronic device.

Although McCallister et al. teach in paragraph [0061] that the surface may be any surface, which means that the device would work if used on a display screen, which is a self-illuminated surface, the combination of Gordon et al. and McCallister fail to explicitly state that the surface is "self-illuminated".

Mumford discloses an electronic device which is used on a self-illuminated display surface (Abstract, Figure 1, and column 6, lines 5-46 explain that the pen is

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used on a display surface, i.e. self-illuminated surface, and that the pen contains detectors for detecting the light.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the teaching of Mumford with the method taught by the combination of Gordon et al. and McCallister et al. such that the electronic device can be used on a display surface in order to provide for the input surface not be physically separated from the display surface such that during a hand-writing operation, for example, the user is able to fixate on the writing and the display (See Mumford, column 2, lines 14-18.).

Regarding claim 23, please refer to the rejection of claim 20, where Mumford discloses a display screen including a self-illuminated surface (Abstract, Figure 1, and column 6, lines 5-46 explain that the pen is used on a display surface, i.e. self-illuminated surface.) and that the electronic device is specifically an optical screen navigation device (Abstract, Figure 1, and column 6, lines 5-46 explain that the pen is used on a display surface, i.e. self-illuminated surface, and that the pen contains detectors for detecting the light.).

6. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gordon et al. (US 6,433,780) in view of McCallister et al. (EP 0 957 448 A2) and further in view of Mumford (US 6,377,249) and Lauffenburger et al. (US 6,963,059).

Regarding claim 21, Gordon et al., McCallister et al. and Mumford disclose a method as recited in claim 20.

Gordon et al., McCallister et al. and Mumford fail to teach a method for determining whether illumination provided by said self-illuminated surface sufficient for said acquiring said first frame; and provided said illumination provided by said self-illuminated surface is not sufficient for said acquiring said first frame, providing additional illumination onto said self-illuminated surface.

Lauffenburger et al. disclose a method for optimizing illumination in an optical sensing device that comprises determining whether illumination provided by said illuminated surface sufficient for acquiring a first frame (col. 7, line 15-17, and col. 8, lines 6-12, where each flash is considered a "frame" and detection of any frame can be considered a "first frame" relative to the time when a low light level is detected); and provided said illumination provided by said illuminated surface is not sufficient for said acquiring said first frame, providing additional illumination onto said illuminated surface(col. 8, lines 6-12).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teachings of Lauffenburger et al. in the teachings of Gordon et al., McCallister et al. and Mumford in order to increase the power of the LEDs if the detected illumination was deemed too low to improve accuracy in the optical navigation.

Allowable Subject Matter

7. Claims 1-2, 4-11, 13-18 and 22 are allowed.
8. Claim 24 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter:

Relative to dependent claims 1, 11, and 22 and dependent claim 24, the major difference between the teaching of the prior art of record (McCallister et al. (EP 0 957 448 A2), Hollstrom (WO 01/61451 A2), Gordon et al. (US 6,433,780), Burns (US 5,442,147)) and the instant invention is that said prior art does not teach a device "to provide interference reducing illumination onto said illuminated surface in response to said optical motion detection circuit detecting interference caused by said illumination" (see lines 23-26 of claim 3 and lines 23-25 of claim 12) nor a method for "determining whether illumination provided by said illuminated surface interferes with said acquiring said first frame; and provided said illumination provided by said illuminated surface interferes with said acquiring said first frame, providing interference reducing illumination onto said illuminated surface" (see lines 21-26 of claim 22).

McCallister et al. teach of a device in which the in an internal illumination means (LEDs) and also external illumination (ambient light) and also teaches of the sensor unit being able to turn on and off the LEDs, however, McCallister does not teach of using the LEDs to provide interference reducing illumination. As such, Hollstrom and Gordon et al. both only teach of having a single illumination means and thus also do not teach of providing an interference reducing light source.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen G. Sherman whose telephone number is (571) 272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS

6 February 2008

AMR A. AWAD
SUPERVISORY PATENT EXAMINER

